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Common Yield Reductions Resulting from Delayed Seeding

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Common Yield Reductions Resulting from Delayed Seeding

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Information on crop yield reductions as the result of delayed seeding in South Dakota is limited. Small grain yield reductions can be estimated from data obtained from the Northeast Research Farm - Watertown (Figure 1). Likewise, yield reductions for corn and soybeans (Figures 2 and 3, respectively) can be estimated from data at the Southeast Research Farm - Beresford.

Small grain yields from late-April seedings generally are high and gradually decline to their lowest level following the mid-June seeding (Figure 1). The rate of decrease over later seedings differs by crop as shown in Table 1. The decrease in yield for spring wheat (HRS wheat) and durum wheat is 0.8 and 0.9 bushels per acre per day, respectively. Yield decreases for oats and barley are even greater at 1.8 and 1.5 bushels per acre per day, respectively.

Since no other small grain seeding date information is available, the Northeast Farm data was used to estimate yield reductions in other productions areas, i.e., areas south of Highway 14 (Table 1). In order to make such estimates, two assumptions were made:

1. The small grain yield response to seeding date in other production areas would be somewhat similar.

2. The yield response to seeding date would differ by production area.

Accordingly, small grain yield reductions by crop and production area are summarized in Table 1.

Corn yields, unlike those small grain, did not show a simple but gradual decline in yield at successively late seeding dates. Compared to small grains, corn yields of both hybrids remained relatively constant for a while then decreased rapidly (Figure 2). In the case of the shorter-season hybrid, yields remained constant until May 17, then declined rapidly by 1.4 bushels per acre per day through May 27 (Table 1). Likewise, longer-season hybrid yields remained constant, but only until May 7, and then declined very rapidly by 1.8 bushels per acre per day through May 27.

Unlike with small grains, no attempt was made to estimate corn hybrid yield reductions at other production area, because seasonal heat unit accumulations and maturities can differ greatly among locations.

Soybean yields showed a somewhat intermediate response to successively later seeding dates compared to the corn and small grain (Figure 3). The early group-II variety varied by 1 to 2 bushel per acre from May 1 to June 4 and then dropped rapidly by 0.5 bushels per acre per day through June 14 (Figure 3 and Table 1). The medium group-II variety decreased 2 bushels per acre from May 1 to May 15, another 2 bushels per acre by June 4, and dropped rapidly by 0.4 bushels per acre per day through June 14.

Figure 1. Small grain seeding date study, Northeast Research Farm, 1982 - 1984.

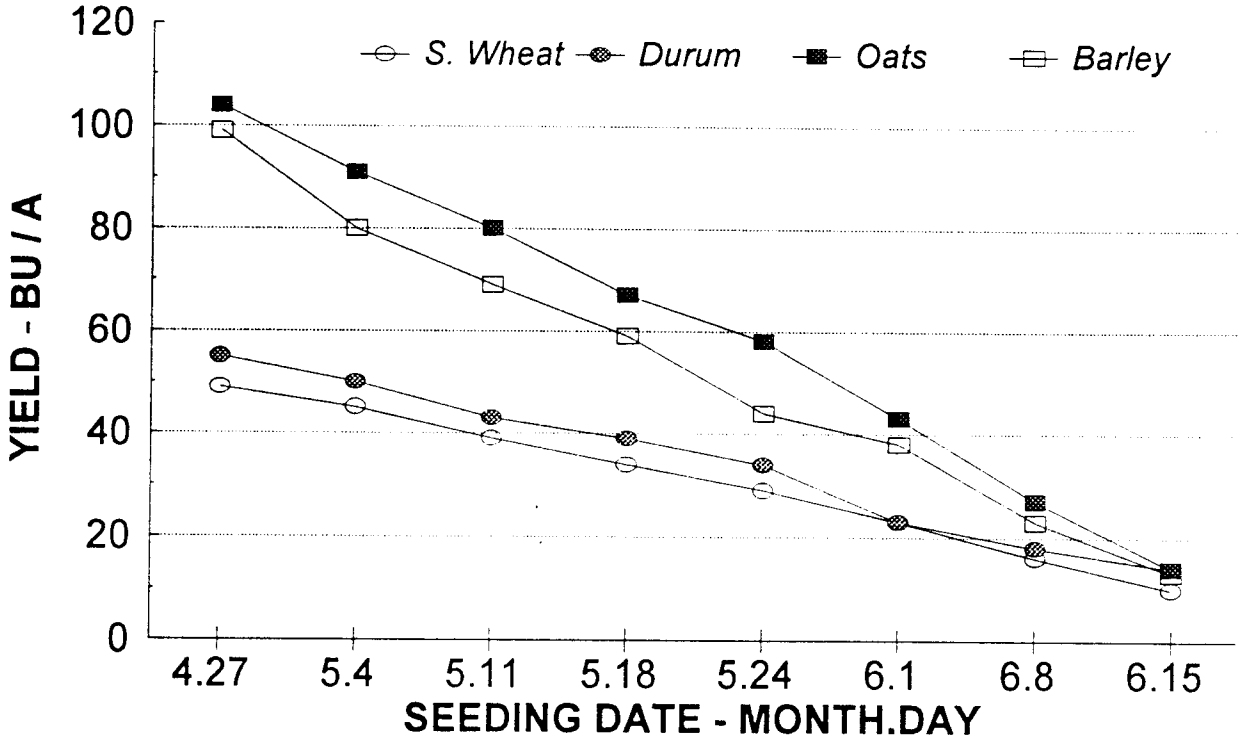

Figure 2. Corn seeding date study, Southeast Research Farm, 1986 - 1994.

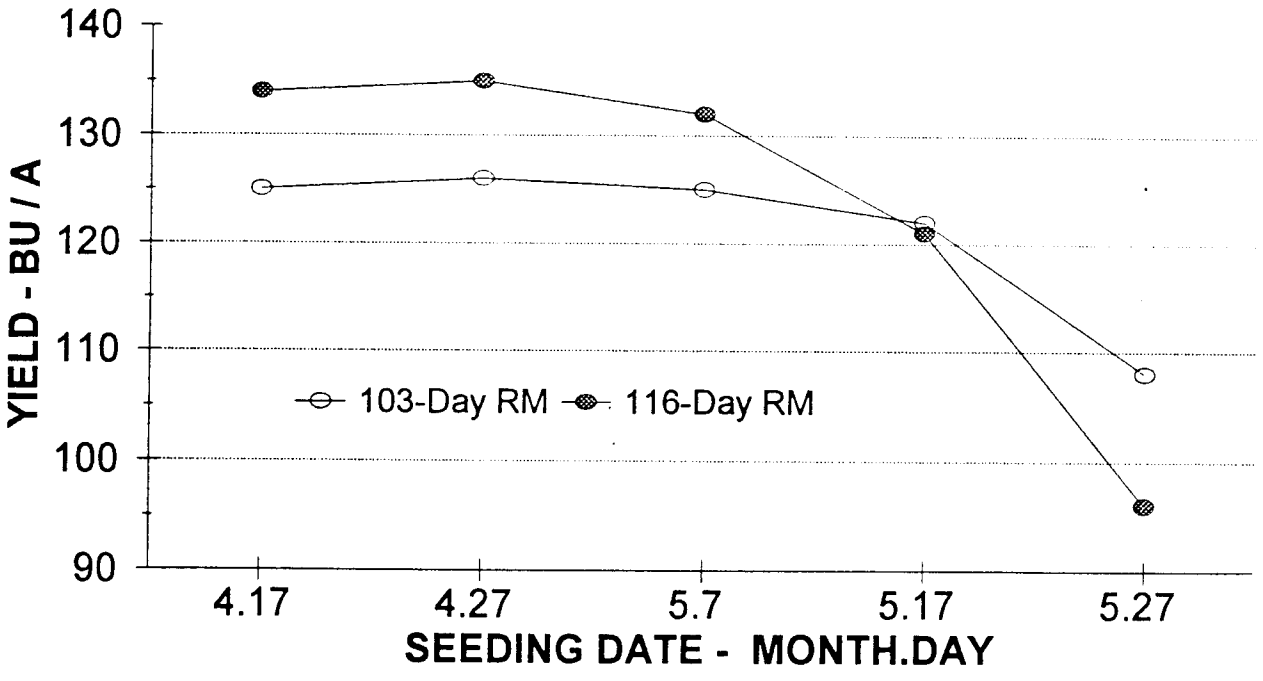

Figure 3. Soybean seeding date study, Southeast Research Farm, 1986 - 1994.

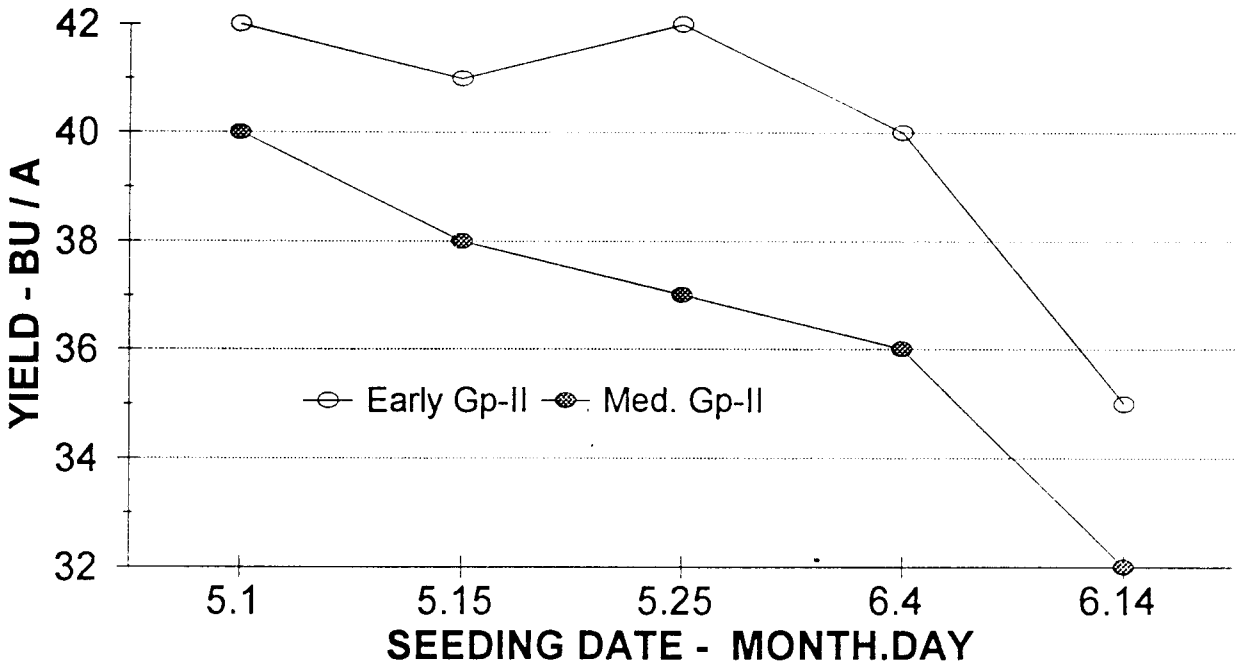

Table 1. Summary of yield reduction information for small grains, corn, and soybeans.

CROP	PRODUCTION AREA	YIELD REDUCTION *Bushels / Acre / Day*
HRS wheat*	North of Hwy 14	0.8 after April 27 thru June 15
	Between Hwy 14 & I-90	0.8 after April 22
	South of I-90	0.8 after April 15
Durum wheat*	North of Hwy 14	0.9 after April 27 thru June 15
	Between Hwy 14 & I-90	0.9 after April 22
Oats*	North of Hwy 14	1.8 after April 27 thru June 15
	Between Hwy 14 & I-90	1.8 after April 22
	South of I-90	1.8 after April 15
Barley*	North of Hwy 14	1.5 after April 27 thru June 15
	Between Hwy 14 & I-90	1.5 after April 22
	South of I-90	1.5 after April 15
Corn**		
103-Day RM		1.4 after May 17 thru May 27
116-Day RM		1.8 after May 7 thru May 27
Soybean**		
Early Group-II		0.5 after June 4 thru June 14
Mid Group-II		0.4 after June 4 thru June 14

* NE Farm data, 1982-84 (see Fig. 1).
** SE Farm data, 1986-94 (see Figures 2 and 3).

Sources

Date of planting of small grain and oil crops. 1982. Kinglsey, Q. and L. Evjen. Plant Science Pamphlet 70:7-8, Annual Progress Report, SDAES.

Date of planting of various crops. 1983. Kinglsey, Q. and L. Evjen. Plant Science Pamphlet 74:7-9, Annual Progress Report, SDAES.

Date of planting study, NE Station, 1984. 1984. Kinglsey, Q., L. Evjen, and K. Korth. Plant Science Pamphlet 90:3, Annual Progress Report, SDAES.

Date of planting corn. 1994. R.K. Berg. Southeast South Dakota Experiment Farm Report 34:2-4, Annual Progress Report, SDAES.

Date of planting soybean. 1994. R.K. Berg. Southeast South Dakota Experiment Farm Report 34:5-8, Annual Progress Report, SDAES.

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